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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,138	04/15/2004	Kei MURAYAMA	80300(302750)	3137

21874 7590 10/24/2008

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EXAMINER	
BAREFORD, KATHERINE A	
ART UNIT	**PAPER NUMBER**
1792	
MAIL DATE	**DELIVERY MODE**
10/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,138	MURAYAMA, KEI	
	Examiner	Art Unit	
	Katherine A. Bareford	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,7 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,7 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment of August 19, 2008 has been received and entered. With the entry of the amendment, claims 2, 5, 6, 8, 9, 11 and 12 have been canceled, and claims 1, 3, 4, 7 and 10 are pending for examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 3, 4, 7 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1, last two lines, now claims that "the space portion smaller than 30 μm being where the short circuits tend to remarkably occur." The Examiner understands that the plain meaning of the term "remarkably" is "to occur in an unusual manner", and the disclosure as filed provides no further definition of the term, so the definition is understood in this case to be the plain meaning of the term. While the disclosure as

filed provides that short circuits occur in spaces of 30 microns or less (paragraph [0028]), it is not indicated that these short circuits would be in an unusual amount compared to other narrow distances, as the specification also indicates that if the pitch is narrowed to almost 60 microns or less problems occur (paragraph [0004]) and noting that this leads to problems with short circuiting (paragraph [0006]). Thus, to indicate that short circuits occurs "tend to occur remarkably" in spaces smaller than 30 microns is new matter.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 4, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (US 5167992) in view of the admitted state of the prior art and McCormack et al (US 3443988).

Lin teaches a method of electroless plating. Column 1, lines 5-10. A substrate is prepared that has an insulating body and a conductive pattern formed on the insulating body. Column 3, lines 45-55 and column 4, lines 30-50. The substrate is to be used for microelectronic interconnect substrates or circuit boards (that is, a wiring substrate).

Column 3, lines 45-55. A catalytic metal serving as a catalyst of an electroless plating process is adhered onto the insulating body and the conductive pattern. Column 5, lines 35-60. An oxidizing agent, which can oxidize the catalytic metal and make the catalytic metal in an inactive state to the electroless plating is applied to the catalytic metal. Column 5, line 60 through column 6, line 20 and column 7, lines 25-35. It would be applied in a space portion S between the conductive pattern features (as it is shown being applied to the entire surface). Column 5, line 60 through column 6, line 20. Then a metal layer is selectively formed on the conductive pattern by electroless plating. Column 6, lines 20-30.

Claim 4: the adhering of the catalytic metal onto the insulating body and the conductive pattern includes coating an activating solution containing ions of the catalytic metal to deposit the catalytic metal by an oxidation reduction reaction. Column 5, lines 50-60 and column 7, lines 20-25.

Claim 7: the catalytic metal is palladium. Column 5, lines 45-60. The metal formed by electroless plating can be a nickel layer. Column 6, lines 20-40.

Claim 10: the oxidizing agent can be sulfuric acid (H_2SO_4). Column 7, lines 20-30.

Lin teaches all the features of these claims except that (1) the conductive pattern includes electrodes to be used with connection pads, (2) the space portion between the electrodes has a plurality of different values, (3) that the oxidizing agent is coated selectively so that the oxidizing agent is formed selectively on all parts of the space

portion which are smaller than 30 microns, out of the space portion between the electrodes, to prevent short circuits.

The admitted state of the prior art teaches that when forming wiring substrates with conductive patterns, it is well known for the wiring patterns to include electrodes formed of copper which then are overplated to enhance reliability, and the electrodes form connections to the electronic parts. See paragraphs [0002] – [0008] of the specification. It is also well known for the pitch of the copper electrodes on the wiring substrate to be narrowed to 60 microns or less, and that short circuit problems occur when plating with these narrowed spaces present. See paragraphs [0002]-[0008] of the specification. It is also well known for the space portions between the copper electrodes to vary over the substrate. See paragraph [0006] of the specification. It is also well known to desire to form a nickel layer selectively on the copper electrodes by electroless plating. See paragraphs [0002] – [0008] of the specification. This electroless plating provides plating without using solder resist. See paragraphs [0002] – [0008] of the specification.

McCormack teaches that when electroless plating a substrate, it is known to be desired to only coat certain areas of a substrate. Column 1, lines 10-20 and 30-45. McCormack teaches that to provide such selective coating, it is known to first treat the entire substrate (base) with a catalyst material, such as palladium to render the substrate senstitive to the reception of electroless plating. Column 5, lines 30-45. Then a "poison" material that deactivates the catalyst (neutralizes, lowers catalytic activity) is

applied to limited selected areas of the based material, such as by printing or silk screen stenciling. Column 5, lines 30-45 and column 2, lines 15-35. Thereafter, the base is contacted with an electroless metal deposition solution to deposit electroless metal deposition solution to deposit electroless metal on the sensitized areas not coated with the "poison" containing material. Column 5, lines 30-45. The poisons can include sulfur, used in elemental or compound form. column 2, lines 25-35. The poisons can be dissolved in appropriate solvent, such as water, and applied. Column 3, lines 1-10 and 48-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) (2) modify Lin to provide that the conductive pattern includes electrodes spaced different distances apart and that these electrodes can be less than 60 microns apart as suggested by the admitted state of the prior art in order to provide a desirable circuit and microelectronic pattern because Lin teaches forming conductive patterns on insulating substrates for circuit and microelectronic usage, and the admitted state of the prior art teaches that conductive patterns on wiring substrates for such purposes conventionally have copper electrodes spaced different distances apart and that the electrodes can be less than 60 microns apart. It further would have been obvious to perform routine experimentation to optimize the distance apart to less than 30 microns apart in at least some cases as the admitted state of the prior art provides that less than 60 microns apart is conventional, and 30 microns is included in the range of less than 60 microns. As to the electrodes being on which connection pads

of an electronic part are connected, the admitted state of the prior art teaches that the electrodes are used to provide connection to the electronic parts, and thus would connect with connecting devices or "pads" on the electronic parts. (3) It further would have been obvious to modify Lin in view of the admitted state of the prior art to apply the oxidizing agent selectively to the non electrode "space" portion, including all the parts of the space portion of less than 30 microns apart, as suggested by McCormack, in order to prevent plating in the unwanted areas between the electrodes, because Lin teaches that it is desired to deactivate catalytic coating on the dielectric surface (i.e. the spaces between conductors) to prevent plating and resulting short circuits and the admitted state of the art teaches that a particular problem which such plating occurs in narrow spaces, which are less than 60 microns apart (which would be inclusive of less than 30 microns apart); and McCormack teaches that a deactivating poison material can desirably be applied specifically to areas where plating is not desired by a selective coating process such as printing. By printing selectively in the areas desired not to have any plating, the amount of material used can beneficially be reduced. As to the space portion smaller than 30 microns being where the short circuits tend to remarkably occur, the suggestion to provide spaces of less than 30 microns and to apply the oxidizing agent specifically to these areas to prevent short circuits is discussed above, and Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979), so even if the space portion of less than 30 microns produces short circuits remarkably,

this is mere recognition of a latent property in the prior art, with the solution of applying the oxidizing agent specifically to these areas to prevent short circuits already obvious as discussed above.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of the admitted state of the prior art and McCormack as applied to claims 1, 4, 7 and 10 above, and further in view of Miller (US 4668533).

Lin in view of the admitted state of the prior art and McCormack teaches all the features of this claim except ink jet printing the oxidizing agent.

However, Miller teaches ink jet printing as a well known printing method to apply materials for electroless plating in a selective form, such as sensitizers and activators. Column 2, lines 40-50, column 3, lines 45-60 and column 4, lines 15-30. The substrate can be an active integrated circuit. Column 3, lines 25-35.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lin in view of the admitted state of the prior art and McCormack to apply the oxidizing agent selectively by ink jet printing as suggested by Miller with an expectation of desirable printing results, as McCormack teaches that selective application of deactivating material can be by printing, and Miller teaches a well known printing method for selective application of materials for electroless plating is by ink jet printing.

7. Claims 1, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeller (US 4770899) in view of the admitted state of the prior art and McCormack et al (US 3443988).

Zeller teaches a method of electroless plating. Column 1, line 65 through column 2, line 12. A substrate is prepared that has an insulating body and a conductive pattern formed on the insulating body. Column 2, lines 20-50. The substrate is to be used for interconnect integrated circuits (i.e. wiring substrate). Column 1, lines 5-15. A catalytic metal serving as a catalyst of an electroless plating process is adhered onto the insulating body and the conductive pattern. Column 2, lines 50-68. An oxidizing agent, which can oxidize the catalytic metal and make the catalytic metal in an inactive state to the electroless plating is applied to the catalytic metal. Column 3, lines 1-12 (sodium hydroxide is a known oxidizing agent, and it deactivates the catalytic metal). It would be applied in a space portion S between the conductive pattern features (as it is shown being applied to the entire surface). Column 3, lines 1-12 and figure 3. It is desired to prevent plating on the space portion to prevent shorts. Column 2, lines 8-11 and column 1, lines 55-60. Then a metal layer is selectively formed on the conductive pattern by electroless plating. Column 3, lines 10-25 and figure 4.

Claim 4: the adhering of the catalytic metal onto the insulating body and the conductive pattern includes coating an activating solution containing ions of the catalytic metal to deposit the catalytic metal by an oxidation reduction reaction. Column

2, lines 45-65 (note the palladium chloride and hydrochloric acid used, which will have the claimed reaction).

Claim 7: the catalytic metal is palladium. Column 2, lines 45-65. The metal formed by electroless plating can be a nickel layer. Column 3, line 55 through column 4, line 5.

Zeller teaches all the features of these claims except that (1) the conductive pattern includes electrodes to be used with connection pads, (2) the space portion between the electrodes has a plurality of different values, (3) that the oxidizing agent is coated selectively so that the oxidizing agent is formed selectively on all parts of the space portion which are smaller than 30 microns, out of the space portion between the electrodes, to prevent short circuits.

The admitted state of the prior art teaches that when forming wiring substrates with conductive patterns, it is well known for the wiring patterns to include electrodes formed of copper which then are overplated to enhance reliability, and the electrodes form connections to the electronic parts. See paragraphs [0002] – [0008] of the specification. It is also well known for the pitch of the copper electrodes on the wiring substrate to be narrowed to 60 microns or less, and that short circuit problems occur when plating, with such narrowed spaces present. See paragraphs [0002] – 0008] of the specification. It is also well known for the space portions between the copper electrodes to vary over the substrate. See paragraph [0006] of the specification. It is also well known to desire to form a nickel layer selectively on the copper electrodes by electroless

plating. See paragraphs [0002] – [0008] of the specification. This electroless plating provides plating without using solder resist. See paragraphs [0002] – [0008] of the specification.

McCormack teaches that when electroless plating a substrate, it is known to be desired to only coat certain areas of a substrate. Column 1, lines 10-20 and 30-45. McCormack teaches that to provide such selective coating, it is known to first treat the entire substrate (base) with a catalyst material, such as palladium to render the substrate senstitive to the reception of electroless plating. Column 5, lines 30-45. Then a "poison" material that deactivates the catalyst (neutralizes, lowers catalytic activity) is applied to limited selected areas of the based material, such as by printing or silk screen stenciling. Column 5, lines 30-45 and column 2, lines 15-35. Thereafter, the base is contacted with an electroless metal deposition solution to deposit electroless metal deposition solution to deposit electroless metal on the sensitized areas not coated with the "poison" containing material. Column 5, lines 30-45. The poisons can include sulfur, used in elemental or compound form. Column 2, lines 25-35. The poisons can be dissolved in appropriate solvent, such as water, and applied. Column 3, lines 1-10 and 48-50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) (2) modify Zeller to provide that the conductive pattern includes electrodes spaced different distances apart and that these electrodes can be less than 60 microns apart as suggested by the admitted state of the prior art in order to

provide a desirable circuit and microelectronic pattern because Zeller teaches forming conductive patterns on insulating substrates for integrated circuits, and the admitted state of the prior art teaches that conductive patterns on wiring substrates for such purposes conventionally have copper electrodes spaced different distances apart and that the electrodes can be less than 60 microns apart. It further would have been obvious to perform routine experimentation to optimize the distance apart to less than 30 microns apart in at least some cases as the admitted state of the prior art provides that less than 60 microns apart is conventional, and 30 microns is included in the range of less than 60 microns. As to the electrodes being on which connection pads of an electronic part are connected, the admitted state of the prior art teaches that the electrodes are used to provide connection to the electronic parts, and thus would connect with connecting devices or "pads" on the electronic parts. (3) It further would have been obvious to modify Zeller in view of the admitted state of the prior art to apply the oxidizing agent selectively to the non electrode "space" portion, including all the parts of the space portion of less than 30 microns apart, as suggested by McCormack, in order to prevent plating in the unwanted areas between the electrodes, because Zeller teaches that it is desired to deactivate catalytic coating on the insulating surface (i.e. the spaces between conductors) to prevent plating and resulting short circuits and the admitted state of the art teaches that a particular problem with such plating occurs in narrowed spaces, which are less than 60 microns apart (which would be inclusive of less than 30 microns apart); and McCormack teaches that a deactivating

poison material can desirably be applied specifically to areas where plating is not desired by a selective coating process such as printing. By printing selectively in the areas desired not to have any plating, the amount of material used can beneficially be reduced. As to the space portion smaller than 30 microns being where the short circuits tend to remarkably occur, the suggestion to provide spaces of less than 30 microns and to apply the oxidizing agent specifically to these areas to prevent short circuits is discussed above, and Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979), so even if the space portion of less than 30 microns produces short circuits remarkably, this is mere recognition of a latent property in the prior art, with the solution of applying the oxidizing agent specifically to these areas to prevent short circuits already obvious as discussed above.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zeller in view of the admitted state of the prior art and McCormack as applied to claims 1, 4 and 7 above, and further in view of Miller (US 4668533).

Zeller in view of the admitted state of the prior art and McCormack teaches all the features of this claim except ink jet printing the oxidizing agent.

However, Miller teaches ink jet printing as a well known printing method to apply materials for electroless plating in a selective form, such as sensitizers and

activators. Column 2, lines 40-50, column 3, lines 45-60 and column 4, lines 15-30. The substrate can be an active integrated circuit. Column 3, lines 25-35.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zeller in view of the admitted state of the prior art and McCormack to apply the oxidizing agent selectively by ink jet printing as suggested by Miller with an expectation of desirable printing results, as McCormack teaches that selective application of deactivating material can be by printing, and Miller teaches a well known printing method for selective application of materials for electroless plating is by ink jet printing.

9. Sugama (US 4927462) notes that sodium hydroxide is a known oxidation agent. Column 3, lines 20-35.

Response to Arguments

10. Applicant's arguments filed August 19, 2008 have been fully considered but they are not persuasive.

(A) Applicant argues that as to the combination of Lin with the admitted state of the prior art (APA) and McCormack, that while McCormack has been cited for teaching that the oxidizing agent is selectively applied to the non-electrode space portion, including all parts of the space portion less than 30 microns apart, McCormack at column 5, lines 34-42 provide no more than that only certain areas of a substrate are

coated, in contrast to the claimed selective coating of "all parts of the space portion" in which the distance between electrodes is smaller than 30 microns as presently claimed, since it fails to disclose with particularity the location of the parts to be coated. Furthermore, applicant argues that APA suggests no more than that short circuits are more likely to occur in the space portions smaller than 60 microns, and fails to teach or suggest that short circuits tend to remarkably occur in space portions smaller than 30 microns.

The Examiner has reviewed these arguments, however, the rejection is maintained. The rejection above does not take the position that McCormack teaches alone that oxidizing agent should be selectively applied to the non-electrode space portion. Rather, the Examiner has noted that McCormack teaches that a deactivating poison material can be desirably applied specifically to areas where plating is not desired by a selective coating process such as printing – one of ordinary skill in the art looking to the other references to Lin and APA <u>in combination</u> with McCormack would be suggested to modify Lin to apply the oxidizing material to selective areas to prevent short circuits, since Lin teaches using oxidizing material to deactivate catalytic coating (that is, the oxidizing material acts as the "poison" of McCormack) on the dielectric surface (in other words, the spaces between the conductors) to prevent plating on these areas, and resulting short circuits (column 1, lines 25-35, for example); and as to the specific size of the spaces to be plated, APA provides the indication that a particular problem with such plating occurs in narrow spaces which are less than 60 microns

across; as a result one of ordinary skill in the art would be suggested to apply the deactivating material specifically selectively to all narrow spaces less than 60 microns, which would include those of less than 30 microns for the benefit of preventing shorts and at the same time saving the amount of deactivating material used. As to the space portion smaller than 30 microns being where the short circuits tend to remarkably occur, the suggestion to provide spaces of less than 30 microns and to apply the oxidizing agent specifically to these areas to prevent short circuits is discussed above, and Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979), so even if the space portion of less than 30 microns produces short circuits remarkably, this is mere recognition of a latent property in the prior art, with the solution of applying the oxidizing agent specifically to these areas to prevent short circuits already obvious as discussed above.

(B) As to the rejection of claim 3 using Lin in view of APA, McCormack and Miller, applicant argues that Miller also does not provide the suggestion to coat all parts of the space portion in which the distance between the electrodes is less than 30 microns.

The Examiner has reviewed these arguments, however, the rejection is maintained. Miller is cited for the teaching as to ink jet printing. The suggestion to coat all parts of the space portion in which the distance between the electrodes is less than 30

microns is provided by Lin view of APA and McCormack, as discussed in section (A) above.

(C) As to the rejection using Zeller in view of APA and McCormack, applicant argues that Zeller, like APA and McCormack, as discussed above (section (A)) fails to teach mention or suggest selectively coating the oxidizing agent to coat all parts of the space portion in which the distance between the electrodes is smaller than 30 microns.

The Examiner has reviewed these arguments, however, the rejection is maintained. The rejection above does not take the position that McCormack teaches alone that oxidizing agent should be selectively applied to the non-electrode space portion. Rather, the Examiner has noted that McCormack teaches that a deactivating poison material can be desirably applied specifically to areas where plating is not desired by a selective coating process such as printing – one of ordinary skill in the art looking to the other references to Zeller and APA <u>in combination</u> with McCormack would be suggested to modify Zeller to apply the oxidizing material to selective areas to prevent short circuits, since Zeller teaches using oxidizing material to deactivate catalytic coating (that is, the oxidizing material acts as the "poison" of McCormack) on the dielectric surface (in other words, the spaces between the conductors) to prevent plating on these areas, and resulting short circuits (column 1, lines 55-60, for example); and as to the specific size of the spaces to be plated, APA provides the indication that a particular problem with such plating occurs in narrow spaces which are less than 60 microns across; as a result one of ordinary skill in the art would be suggested to apply

the deactivating material specifically selectively to all narrow spaces less than 60 microns, which would include those of less than 30 microns for the benefit of preventing shorts and at the same time saving the amount of deactivating material used. As to the space portion smaller than 30 microns being where the short circuits tend to remarkably occur, the suggestion to provide spaces of less than 30 microns and to apply the oxidizing agent specifically to these areas to prevent short circuits is discussed above, and Mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979), so even if the space portion of less than 30 microns produces short circuits remarkably, this is mere recognition of a latent property in the prior art, with the solution of applying the oxidizing agent specifically to these areas to prevent short circuits already obvious as discussed above.

(D) As to the rejection of claim 3 using Zeller in view of APA, McCormack and Miller, applicant argues that Miller also does not provide the suggestion to coat all parts of the space portion in which the distance between the electrodes is less than 30 microns.

The Examiner has reviewed these arguments, however, the rejection is maintained. Miller is cited for the teaching as to ink jet printing. The suggestion to coat all parts of the space portion in which the distance between the electrodes is less than 30 microns is provided by Zeller view of APA and McCormack, as discussed in section (C) above.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/
Primary Examiner, Art Unit 1792